

0	ETH 10 m	69°33'27"N, 49°21'27"W	1176	1990.4	GOES	8030A1E0	207/14	00:43:40	-
01	Swiss Camp	69°33'27"N, 49°21'27"W	1176	1990.30	GOES	80300118	207/14	00:41:00	04458
02	Crawford Point1	69°52'29"N, 47°01'21"W	2022	1995.39	GOES	8030126E	210/13	00:41:10	04456
03	NASA-U	73°50'27"N, 49°31'20"W	2420	1995.41	GOES	8030D770	206/10	00:18:00	04443
04	GITS	77°08'14"N, 61°02'04"W	1889	1995.43	Argos	107282	-	-	04435
05	Humboldt	78°31'40"N, 56°50'29"W	1995	1995.47	Argos	107283	-	-	04432
06	Summit	72°34'46"N, 38°30'20"W	3215	1996.37	GOES	803027F4	208/10	00:41:20	04418
07	Tunu-N	78°01'06"N, 33°58'10"W	2052	1996.38	Argos	107285	-	-	04425
08	DYE-2	66°28'54"N, 46°17'22"W	2099	1996.40	GOES	803084FE	210/16	00:41:30	04464
09	JAR 1	69°29'38"N, 49°42'35"W	897	1996.47	GOES	80303482	206/14	00:41:40	04452
10	Saddle	65°59'59"N, 44°30'06"W	2467	1997.30	GOES	80307788	213/16	00:41:50	04485
11	South Dome	63°08'56"N, 44°49'00"W	2901	1997.31	GOES	80305164	213/18	00:42:00	04492
12	NASA-E	75°00'05"N, 29°59'13"W	2614	1997.34	GOES	8030E2EA	226/7	00:18:10	04420
13	Crawford P2*	69°54'48"N, 46°51'17"W	1990	1997.36	-	-	-	-	04450
14	NGRIP*	75°05'58"N, 42°19'59"W	2941	1997.52	Argos	24739	-	-	04440
15	NASA-SE	66°28'41"N, 42°29'46"W	2373	1998.30	GOES	8030870C	214/15	00:42:20	04488
16	KAR*	69°41'58"N, 33°00'21"W	2579	1999.38	GOES	80304212:22	(223)	-	-
17	JAR 2*	69°24'53"N, 50°05'34"W	507	1999.41	GOES	8030947A	206/14	00:42:10	04460
18	KULU*	65°45'30"N, 39°36'06"W	878	1999.46	GOES	-	217	-	-
19	JAR3*	69°23'40"N, 50°18'36"W	283	1999	-	-	-	-	-
20	Aurora*	67°08'09"N, 47°17'32"W	1798	2000.47	-	-	-	-	-
21	Petermann Gl.*	80°41'01"N, 60°17'35"W	37	2002.40	Argos	107284	-	-	04430

22	Peterman ELA	80°05' 45" N, 58°07' 54"W	924	2003.40	Argos	107284	-	-	-
23	NEEM	77°26' 31" N, 51°04' 56"W	2461	2006	GOES	8030C406	204/8	00:40:50	04436
24	EGRIP	75°35' 36" N, 35°59' 19W	2600	2014	GOES	8030947A	219/8	00:42:10	-
30	LAR1	68° 08' 28" S, 63° 57' 07"W	53 m	2008	GOES	80304212	350/12	00:43:30	-
31	LAR2	67° 34' 35" S, 63° 15' 27"W	42 m	2008	GOES	8030A1E0	351/13	00:43:40	-
32	LAR3	67°01' 54" S, 62° 39' 01"W	42 m	2008	GOES	8030B296	352/14	00:43:50	-
41	PE-Air	71° 57' 00" S, 23° 20' 44" E	1407	2013	ARGOS	135796	CBA6114C	-	-
42	PE-Gun	72° 15' 20" S, 23° 14' 41" E	2346	2013	ARGOS	135797	CBA6115F	-	-
43	PE-Blu			2014	ARGOS	135798	CBA6116A	-	-

INDEX

2016

Konrad Steffen

WSL - Swiss Fed. Res. Inst.

8903 Birmensdorf

Switzerland

Koni@ethz.ch

Field Season 2016

- |      |   |
|------|---|
| 26.3 | Lithium Batteries                         |
| 29.3 | Food for Swiss Camp, Shopping for Gr.     |
| 5.5  | Cargo weight for put in SC                |
| 5.5  | Swiss Camp put-in + CP1 service           |
| 6.5  | DN10 and JKR1 station downloaded          |
| 7.5  | Began problems, no internet               |
| 7.5  | Redrilling JKR1                           |
| 9.5  | 10M + SC AWS downloaded                   |
| 11.5 | Snow traverse left for CP1 (7 days)       |
| 11.5 | SC GPS programming                        |
| 12.5 | Redrilling DN10                           |
| 14.5 | Installed GPS at JKR1, <u>Sab</u> arrives |
| 16.5 | Snow Survey Swiss Camp                    |
| 17.5 | UP 50 GPS                                 |
| 18.5 | Pull-out Swiss Camp                       |
| 19.5 | S-Dome AWS, Dye-II AWS                    |
| 20.5 | Sadlet, NASA-SE AWS                       |

GPR

29.2.16

22.5 Summit Breen towers, sonar

22.5 Extended AWS BSRP tower

1.3 GHz

23.5 NASA-E; EGRIP

400 MHz

24.5 NASA-U, EGIP movie

The cryosphere I, 631-701, 2015

25.5 NEEM, GITS

Quantifying meltwater refreezing along

26.5 Petermann

a transect of sites on the Petermann

27.5 Humboldt, Core 7 cash

ice sheet

28.5 Return shipment

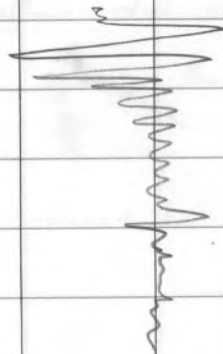
Send ic change files

31.5 At Gore discussion

GPR Rd3 Rk 1 GHz

2.7. Set up for UP18 / Began

9.7. Swiss Camp, Up 18 visit AL GORE



Tents for Swiss Camp

Martin	10	1
Leo	2	
Melge	3	
Pleng	4	
Blanca	12012	1
Kari		
Rani	5	
Lip	5	

Swiss Camp melt

7.3.2016

Calculated from AWS date 2015

JD 167 start of surface height change

0.8 m above ground

JD 205 height at 1.9m

$$\Delta h = 1.1 \text{ m}$$

Snow survey spring 2015 = 115 cm

 $\Rightarrow$  JD 205 all snow melted $\Rightarrow$  ice surface did not change in  
height during the summer? $\Rightarrow$  station should be at this year?

24.3.16

Martin Proleda Priorities

1. Density profile at least 1.5m

2. SHP 6-10

3. Temperature profile to 1.5m

4. Ice cube profile

5. IR picture of profile

6. SHP more than 10, min

6. or surface SSE transects

IR surface: Summit, EGRP, Summit

S-Power: logarane in + out

NASA-SE

Trip needs- short + long crane radiometer  
for altitude profile at base camp

→ insulator to plane

- heating blanket

→ Trillium OR S, SC

- Lemo + Howard - repair

→ 4x4 beams for Snow Camp

- 3 snow boxes from VECO ← (x)

→ cold transport from Kongsberg - ZMR

- 3 snow to Summit

⇒ 50 flaps with flaps ← (x)

→ Hafe file from transport to

Neuca

⇒ boards + beams wood

CP1 to SC: ca. 4 days, 1 dg.

→ GPR Markus Thurns



# Flight 2

Alu D	63	Alu	131
Alu F	91	Generator	35
green bag	33	Batteries	13 x 2
Alu C	51	Alu	55
Trimble	37	Red bag	21
"	36	Alu	87
black box	116	Ski	33
Alu	53	SMP	42
Alu B	55	SMP	42
Alu	35	Food	118
Alu	114	Food	116
Alu	68	Food grey	166
Alu	47	Alu	50
Alu	69	Sledwood	123
Yellow	46		104
long blue	59		773
	8		
	773		
	420kg		1818 lbs
	700kg		
	1120kg + 8px		826kg + 3px

## Swiss Camp put-in

5 May 2016

CP1

added to google sheet

60° 52' 27.7" N

47° 01' 27.8" W 1948m

At CP no data on the logger, it stopped recording one month after the last visit in May 2015. Had to re-load the CP Goes Campbell program to work again. Had to change out the upper snow sensor, all the rest was working. Set transceiver was stuck, GPS was not syncing, reset all but sync did not occur before we left. Tim other arrived 4.5 h after our landing at CP1.

We had two loads to Swiss Camp  
Crew: Kari, Bianca, Martin Schuebeli, Lion Schuebeli  
Vene Grischberger, Netje Gellman, Ravi

5 May 2016 Swiss Camp

The camp was in great shape, the snow in the tents the platform was slightly bent on the titcher tent. I have not figured out yet why.

All tents were put up when Brian and I returned from CP1. It was quite warm and low winds,

Swiss Camp

6 May 16

PM10:  $68^{\circ} 30' 04'' N$   
added to google sheet  
 $49^{\circ} 33' 34'' N$  1005 m  
not down looking at the data yet

PM1:  $65^{\circ} 29' 37'' N$   
added to google sheet  
 $49^{\circ} 42' 41'' N$  800 m

Dec laptop stopped on Apr 10, 2016 recording, but have no idea why?

GPS had power but recorded only every day till end of Dec 2015. At least it worked that far! But no data files in January 2016.

Towers need to be redone, as the GPS D100 power, but do that business

7.5.16 CP1 and DNT0

Redrilling both sites is planned.  
There was 3m melt the previous season.  
But I did only observe 0.5m  
melt below the Summit Camp Station  
and no melt at the SC AWS, only  
the snow melted away.

CP1 re-drilling

7.5.2016

Put the beam 4m into the ice,  
connection is just at the ice horizon,  
with 60cm snow.

I cut the power cable to the GPS,  
but repaired afterwards.

Had to retape the Campbell program  
test need to check all the channels  
next time, Pressure sensor to be off  
and needs a special parameter in the  
program. Also HWP45 not sure if the  
were working.

→ Down to bed no time for drilling,  
will do it next day.

It was a calm and warm day!



Monday

late evening 18-21 VK

chain

Tues - South - westerly

decrease winds

morning

30 knots

after lunch -

Tuesday 6pm update

cloudy conditions, 0-10°

becoming E-SE 10 knots

Wednesday

cloudy to fair

winds SE 8-15 Kts

Temp 0-10°

both days

Swiss Camp

J.T. 16

Ans Tower: downloaded data  
from C1000 and all records on  
the logs, wind speed 1 m/s  
working all the rest of the day (4)

to in Tower: Downloaded cloud  
and all data up to today. Memory  
card had only videos from Apr 25/16

HMP 45 boxes have not working  
because CR Base program under the  
control Post 6, need to install a  
new HMP 45.

Snow height instrument stopped yesterday.

On Apr 11, 2016 there was a  
problem on Temp. sensor showing +20  
(Tc only) but it was not that we  
also data logs stopped recording on  
memory card.

10.5.2016

10 m Tower

Adding a new HMP155A  
Temp/Hum sensor at the lower  
level (so I don't need the  
control port 6 on CR1000 which  
is used for the Radar.

Yellow - Temp SE

Blue - Hum SE

White, Black, Green =  $\neq$  ground

Red - 12V (SW 12V)

Celsius multiplier 0.14

offset - 80

Humidity multiplier 0.1

Volt SE (X, 1, mV 2500, 2, 0, 0, - 6000, 14, 80)

10.8.16

CS 500:

black - temp

brown - RH

Green - Signal + Power Ref

Red - power

clear - shield

This is the upper sensor (10m).

11.5.16 Swiss Camp → yesterday 10.5.16  
 Snow party Martin, Lina, Marie, Steve  
 left for CP1 and arrived after ~ 7 hours  
 with lot of new snow. It was melting  
 most of the day. Yesterday they made  
 only 5 km on foot due to very soft  
 snow. They have to travel at night,  
 when the snow will refreeze.

Swiss Camp GPS 11.5.16  
 New GPS setting for long-term recording.

(A)	1 April 2016	→	1 OCT 2016	54246
(B)	1 Dec 2016	→	10 Dec 2016	240
(C)	1 Feb 2017	→	10 Feb 2017	240
(D)	1 Apr 2017	→	10 CT 2017	5424

Φ 465 R7 at Swiss Camp } both  
 Φ 471 at down 10 } programmes

K 5196 former Swiss Camp shows 1996 data  
 for new files → taking home.

I 3832 same problem, file date 3/26/96!  
 for newly generated files.

13.5.14 Crawford traverse group

1/2 tank fuel left around

1/4 tank up 50km from S

1 jerry can = 1 tank.

up 50 and up 16 need new GPS

units

9  
up 18?

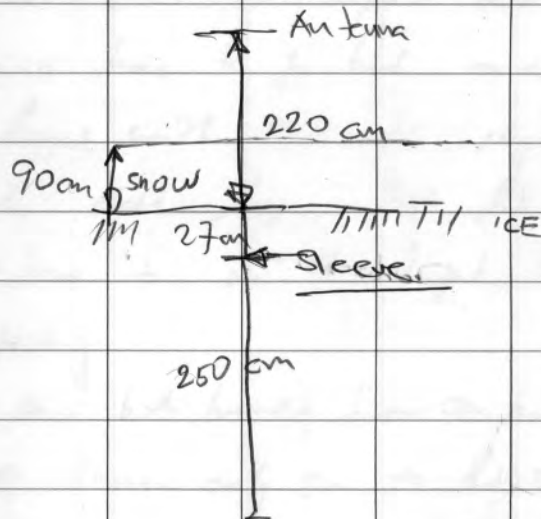
DW10

13.5.14

Recharging tent could not finish the job, the batteries went empty after we drilled twice - could not get the ice on east of the hole after

2m depth. Drilled twice to 2.5m.

There was 1m of snow with 3 layers of ice, one of which 5cm pure ice - closest to the top.



14.5.

# Snow Travel Group

15km SC from up 50km  
mug, zhadit Hiti Ras

→ Need tomorrow 4 canisters fuel  
Dinner like Rice, others,  
Breakfast milk + jam  
Chocolate, Pub, anything else?

JAR

14.5.16

Installed GPS unit 2 (Powers D10 unit)  
# 40180 and it started recording

- Data logger not working, even  
when connected with power cable  
from satellite transmitter (?)  
Not sure why, recording worked for  
1.5 days after my scan a few  
days ago

2016-05-08 stopped but had 13.7V!  
Will have to go back and check data  
logger with VOM meter, maybe replace  
the data logger. First let's pull some  
cables to see if I get the circuit  
working

= seems both humidity sensors are out

→ Pressure only give to full value



15.5.16

JAR1

Went back to Jar 1 and updated  
the data logger. It was the first  
SD1 snow sensor height which gave  
a signal that blocked the data logger.  
I changed the data logger, but the  
problem (no snow and could not record)  
did not go away. Then I discovered  
without sounds in it I found out the  
SD1 was the problem.

All working again (not SD1) and  
also checked the satellite transmitter which  
seems to work.

Source Camp

15.5.16

Things to do:

- to run to aw, transmitter test.
- Snow survey at both AWS's
- up 16 GPS by shadow
- up 50 GPS by plane?
- is CP1 working now?
- Why is Trimble giving me 1998 data  
for the files?

7208 ipg dropped backup!

16.5 Swiss Camp

Harkin Sdmucheli + Neue freiburger

arrive at 9 am after more than 6 days

on travel. They pulled the radar sleds

to look from CP1 to SC.

Preparing up 50, up 16 16.5

2013 Up50  $69^{\circ} 44' 40'' \text{N}$ ,  $48^{\circ} 08' 03'' \text{W}$

60 cm to Steeve / inches

Up50 (2016)

$69^{\circ} 44' 36'' \text{N}$

$48^{\circ} 08' 37'' \text{W}$

1615 m

250 cm

60 cm

/// / / / / Snow

Box

15.5 Snow survey

10m tower

142 } ice surface

144 } 136

138 }

80 ?

70 ?

re base } 80 ?

rim } 75 ? (48cm ice layer?)

Distance to Box 64cm

1 1 low am 166cm

4 1 low red on 65

1 1 " " 104

16.5

snow pit next to 10 m tower

95 cm snow to white surface  
(refrozen snow?)

ice layers @ 25cm from bottom  
30 cm  
48 cm

Snow + refrozen from 135 - 140cm

16.5 Snow survey SC AUS

60 cm

55 cm

118 cm } at/below sun sensor

122 cm } facing camp

117 cm } " away from

125 cm } camp

119 cm

119 cm

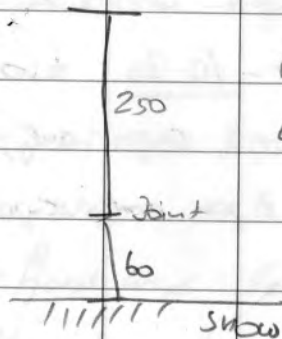
110<sup>cm</sup> side box

107 cm on lower arm

UP 50

17.5

drive to up 50 km GPS site,  
extended pole, which is now  
250 + 60 cm above snow



added to google sheet

65° 44' 36" N

48° 09' 37" W

16.5 m

The solar panels blocked by snow, only  
box and antenna was out of snow.

Recording did not last very long for  
previous year.

→ batteries are at 5.6 V and solar  
panel charging, hope it will start  
again when batteries are charged.

15-19 May

Sebastian + Ravi Hardy

Both are leaving to CPH today

AWS Traversi South

18.5.12

Preparation

S-Dome

no extension

take battery box along

logging - all in - 6985

NEED TO TAKE A Predator!

Saddle :

no extension needed

transit of, ddc is off!

Nose-SE :

needs extension

no transit

needs Solar panel

Dgc- $\pi$  :

no extension needed

unit

unit of,

pressure not working



19.5.2016

Sandy - South Pole

Dye-2

19.5.16

Weather prediction is good and we  
do this flight first.

Left at 10:15 from Sandy

Transmitter: 37.4 dBm Forward power  
14.3 dBm Reflected Power

Realigned antenna to 213°, it  
was 310° (there for not working)

Moved the mast, and held it now  
wind dir sensor by 10° only.

added to google sheet

63° 08' 939' N

44° 49' 030' W

→ I love you!! I love you too!

All works well, snow pit density  
done by Harri + Peng.

We hope to land on the way back  
from S-Pole at Dye-11. Since the  
weather will change along the way work  
tomorrow.

X-mit is working, but pressure sensor  
out.

Wind speed 2 is out

Pressure sensor ok!

Wind wheel  
missing  
needed to replace  
the front of the  
"Plane".

SD1 out since last visit!

We replaced the instrument but did not  
work. → Only cable or propane could  
be the error.

Humidity 2 is out, but not repaired.

20.5.2016

Saddle

NASA-SE

20.5.16

Left at 8:30 am for Saddle, then NASA-  
SE. Frost mainly from West.

Tc gir 1 too high - strange - check wire!  
Wind 1 not working correctly

SD 1 ant

SD 2 might be ant

65° 59' 55.6"N added to google sheet

044° 30' 09.2"W 2451m

Exchanged Tc 2 (upper) which was now

Repaired both SD 1, 2, ok now

Replaced wind, but V speed was on  
and off. Dir ok.

Rest is working.

Wind speed 2 seems to be  
all the rest seems working, but there was  
no transmit  $\Rightarrow$  antenna?

Snow 1 noisy ✓

Snow 2 out ✓

66° 28' 41.6"N

2382m

42° 29' 43.5"W

added to google sheet

• Extended tower - no problems

• Wind speed was out - repaired.

• Replaced snow SD 1

• Reset X-mit, azimuth 213 was correct.

Martine + Henc Snow near.

20.5.16

Northern Traverse - Prep.

20.5.16

Summit:

- needs extension
- pressure not working
- needs 2nd solar panel

• Humboldt  $\Rightarrow$  battery box

• Potomac  $\Rightarrow$  new battery box  
 $\Rightarrow$  redrilling??

EGRIP:

- needs extension (more stations?)

Total extension: 5 Cages + 5 stations ✓

NASA-E:

- no unit

- Solar panel ✓

- 1 am ✓

- solar panel ✓

NASA-U:

- needs extension  
 unit de ✓

NEEM:

- needs extension

GIS:

- needs extension

needs am; new SD

21.5.2016

Song - Summit

22/23.5

Flight around noon to Summit, where  
we will stay two nights.  
Thyls to do at Summit.

AWG - extension  
- add 2<sup>nd</sup> solar panel

BSR - extend both towers

Radar - check and update

SDM tower - raise box and levels

Solar tech: Connect with PC

10 m tower

Wind 1 93 cm

Wind 2 99 cm above wind 1

sonic 1.61 m

temperature 1 93 cm

temperature 2 97 cm above  
temp 1

box 1.53 m above snow



# 22/5 Radiation tower 2

NOAA arm 180 cm upper end

SW in plate 188 cm (plate)

SW reflect 170 cm (plate)

SW reflect } 168 cm (plate)

SL outgoing }  
(on long arm)

# Radiation tower 1

22.5

(solar tracker)

radiation 173 cm

plate

lower end box 78 cm ✓

needs extension of  
cables — see pic



22.5.2016

Summit

AUS + BSRW

Extended AUS tower and replaced  
pressure sensor and added 2nd solar

panel

(X) → address CS106 sensor,  
multiplexer should be  
- 24, not - 134

Extended both BSRW towers with  
extension from ETH. The solar tower  
tower needs two cables before the next  
extension, both data cables to the  
other radiometer tower. Send email to  
Karl.

New level heights are given on previous  
pages

Summit 50m tower

22.5

Moved data logger box at least  
1.9m above the snow, and  
all the lower 3 arms to  
100, 200 cm, 3 level not measured  
but moved ca 70cm higher.

The snow transmitter cable needs an  
extension, did not connect because too  
short now. Send Karl email and  
pictures.

23.5.2016

Sun. 7 - NASA IE

Again a very calm day at Sun. 7  
 did some small tasks in the morning  
 (added solar panel, measured height)  
 Peipe + Lisa did snow density measurements.

no extension needed, but no xmit?

NASA-IE

added to google sheet

75° 00.11.8

all worked except U1,

29° 59°.126

could not read.

Antenna was off by 165°, turned to  
 223° Az, and vertical was at 0°, now  
 at 7°. Transmitted had data and  
 seems to work!

Fuel Cash @ WEEK

23.5.

Fuel cash in drums @ WEEK:

7 drums for Steffen

3 drums for GLISN

Please mark mt's clearly for  
 picking up after use.

23.5 NASA-U to NGRIB

Left NASA-U at 6:30 pm.

weather still very good!

Plan:

24.5 EGRIB - NASA-U

+ EGRIB extension

25.5 EGRIB - UEP - GIS - Qanunq

26.5 Q - Petermann - Humbuk - Q

27.5 Dry At

28.5 Q - SFJ

EGRIP

24.5.16

Arrived yesterday 7:30pm, clear and calm  
weather, food dinner and discussion.

Can we come back to EGRIB house  
Qanunq on the way South to pick-up  
the dogs. The detour would be 2 hours!

Preparing for NASA-U - with extent today.  
accumulation is 0.8m

transmitted data: 2016 (battery d/)

- SD-1 needs replacement

- Pressure is questionable → replace!  
all other sensors are ok

CS 106 sensor (new)

Set to normal mode, input  
must bridge (CS105 option is 1)  
Set pressure option to 0 in program!



24.5.2016

Pressure Sensor

EGRIP

NASA-U

24.5.16

changedCS 105:  $flag = 1$ 

VoltDiff (pressure, 1, mV2500, 4, 1, 0, - 60Hz,  
• 184, 200)

CS 106:  $flag = 0$ 

VoltDiff (press, - 60Hz, • 24, 200)

Program needs to be adapted!

73° 50' . 27" W

233?

49° 31' 23.5 W

added to google sheet

Replaced pressure CS 105 with CS 106

→ needs new coefficient • 24 instead of • 184

→ data needs to be processed!

→ one source was intermittent / appears one!

But we could not reach the sensor.

Snow accumulation was only ~ 2.6m,  
 we did not extend the towers. Next  
 year the ionosphere will be just  
 below the snow.

Snow density meas. by Gino + Neige



24.5.16

EGIP

Will move AWS closer to camp, now  
it is 4km from Dome.

Will dig out the battery box and  
pull it out with crane.

24.5.16

EGIP

old, 75° 35' 37.7 N

35° 59' 19.1 W 2693

added to google sheet

Station moved to camp, beside the  
snow compaction site from the end  
the GEM AWS.

25.5 NEEM - GITS - Q. on schedule

26.5 Q. - Petermann - Humboldt

27.5 Rest day

28.5 Q. - Sandy

No new coordinates taken All working after  
the move with the bulldozers! Had to  
shovel a 2m hole to fit the new  
site of EGIP.

Left EGIP next morning at 8am  
to NEEM, including the station  
dubor



25.5.16

NEEN # 23

GITS

25.5.16

Wind is out (0)

Pressure is 999? - 6998 - pressure is out!

77° 26 28.2 N 2553

51° 04 57 W added to google sheet

Extended in record time, 1h?

All working except pressure, checked  
cables but not over, had no spare  
pressure sensor left.

Extended power cable, +1 extension

Density probe + 1

Needs 2<sup>nd</sup> SD instrument - no it worked

Downloaded Memory dump, but looks like

binary data. Downloaded directly from ocean  
and it worked.

Extended lines, and power cable.

All drums working.

We did both extensions in 2 hours each

which is a new record.

Flying to Raanoo, now, my favorite place  
in Greenland!

255

Qaanaaq

clear day

Humboldt

6 Dec

26.5.16

Arrived early afternoon, Hans was  
already waiting for us in the airport.

We went by late afternoon to burn  
for a while and on the sea ice.

After dinner hike along the coast towards  
airport with view on Helmer + Wohlwendens  
Isles.

Stopped xunt JD 340, battery was  
3V  $\rightarrow$  needs new battery!

Put battery here!

Petermann

11.20 (JD 334)

Also low on battery, NOV stopped xunt

$V = 9.5$  Volts.

$T_{\text{air},1,2} = \text{out}$ ,  $U_2 = \text{out}$

no spare battery left.

Table 46

Log-id, Year, JD, hour, SWin, SWout, net  
 $T_{\text{air},1,2}$ ,  $T_{\text{air}},1,2$ ,  $rh,1,2$ ,  $U,1,2$

Table 48

Log-id,  $V_{\text{dir}},1,2$ , press,  $SD,1,2$ , .... hct.

26.5.2016

Petermann

Replaced two snow heaps

Replaced battery box

80° 05' 49.5" N 58° 08' 18.1" W

944 m

added to google sheet

Downloaded Manov clip, again  
 data is binary format, need to convert,  
 Downloaded by attaching PC to camera.

All other drone work. 1-2 years  
 until new drilling needed.

Need try to reach Humboldt again,  
 we have low clouds on our  
 way here.

Humboldt

26.5

Could not land, were very close  
 and wanted see the station, but no  
 contact under the clouds and  
 after two approaches had to pull up.

Back to Qaanaaq, may be Humboldt  
 on the way to Søndy if the clouds  
 are lifting.

Last night at Qaanaaq, then end of  
 field work and flight back to Søndy.

27.5

Quincy - Humboldt

Left Q. around 10am and will try  
Humboldt again before going south.

This will be our return flight to  
Sandy and the end of a great

field season.

added to google sheet

Humboldt Line AWS station: 1989m

$78^{\circ} 31' 40.7'' N$ ,  $56^{\circ} 50' 29.5'' W$

Landed and downloaded data.

Memory chips had only data until Dec 7<sup>th</sup>  
when transmission stopped. There was a

table header error (date) and I had

to reset the tables on CRANO, so

could not download the rest for

Dec to May. All downloads were

working (unfortunately)

Humboldt - Upernivik

27.5.16

The old story: Live out at Summit without  
any instructions - we left them at EGRP.<sup>p</sup>

Upernivik - Core 7 492km

Core 7 - Sandy 443

935km

We went to Core 7 camp at

$70^{\circ} 18' 10.21'' N$ ,  $44^{\circ} 34' 0.18'' W$  2600m

to drop 1 gallon oil for Sirodoos.

This location was 492 km from Upernivik,

a debut of their when compared to

Upernivik - Sandy. This should be closer

to the Osterberg group.<sup>p</sup>

I paid for the oil to take from my  
pocket. → loco.



7.7.16

UP 18

69° 39' 55" N, 48° 59' 49" W

calculated by Jay for June 2016Dead Glacier

69° 19' 55" N, 50° 20' 28" W

JAV Glacier area

69° 7' 24.6" N, 49° 38' 20" W

Houlton 1

69° 33' 12.5" N, 49° 54' 21" W

Houlton 2

69° 33' 15.3" N, 49° 54' 7" W

CPH - Timberland

9.7.2016

With Bianca from CPH to JAV  
to meet with Al Gore at  
Swiss Camp

Heaven's Gate

Michael's Criminals

1980 Johnson County

Mountains

Location during Ge. Gie's visit

12 July  
2016

Houlton 69° 33' 17.4" N, 49° 54' 06.8" W

UP 18: 69° 39' 53.6" N, 48° 59' 50.6" W  
from Jay 69° 39' 55.1" N, 48° 59' 48.4" W

added to google sheet



## Ans preparation 2017

CP1 needs extension, not X unit  
→ need an extended unit  
→ Battery not sufficient 4 month warranty  
in middle of winter, raw Rotten

Dye-II maybe needs extension, yes  
Battery went to 11.8V, but works on  
water

EGRIP no extension needed  
not red to make, short warm beds.  
Snow kept was out in 2016

GITS ✓ data got in Feb for 2 weeks!

was extended in 2016

Transmission OK!

Wired @ not connected or out?  
some @ + @ are out, battery 12V!

Small Ans - Ref retraining!

① → in real outdoor housing

Extension: CP1 Dye-2 JARA, NASE-4

④ → 6 spurs in kangs!

Battery box: CP → 2 boxes in kanger  
hum

Hum: extended in 2015, works ok.

⇒ Needs new battery ✓ let's check  
the transmission is OK ✓  
SI changed the unit to 335

JARA: Extension needs to be rechecked

NASE F: no extension needed  
recordings work well, X unit ??

NASH-SE: extended in 2016

works well

Ans for 2nd

WKA M: Extension needed!

works well

NEEM: extended in 2nd 6

works well

Pet: no extension needed, maybe

~~1~~ redrilling! Has new battery box  
transmission ok, but battery gets low/weak  
⇒ Solar power & Space duct power  
Team both out

Sadik: Should be ok in 1 year!

rest ok,

S-Dome: extension needed

rest ok

Summit: extended in 2nd 6

rest ok

Summit: no extension needed

Turner-W: transmission good  
no extension needed  
battery ok, wind dr (2) out  
Source (2) intermittent

Order spare parts for AWS

Eric Riggs station 79°N?

Extensions (5) CP1, PhC1, JAP1, NASP-4  
(Sadik)

Batteries (2) CP1, (Hume)

Redrilling (1) Pet,

1.12.2016

Aufarchen

PE - air ok, power ok

PE - blue ok, " "

PE - green ended JD 225, needs

→ battery

PE - air to ground ok, wind 1,2 not equal!  
 SD 1,2 not working?

PE - blue Source 2 out, all the rest ok

PE - green until 225, then power out  
 not road not connected or missing  
 So mix ② out, battery 9V, stopped

7<sup>90</sup> AWS site

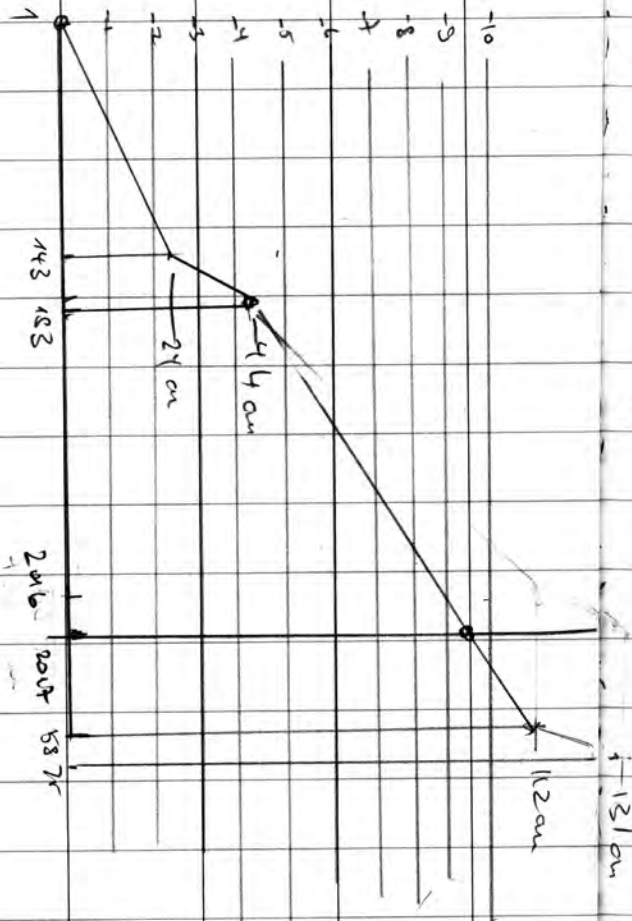
1.12.16

AWS 3 (cu) 78.96443 N, -22.636678W

78° 57' 52" - 22° 38' 12" W

altitude 566 m

276 km NEE from Tunc-N !278 km from EGRIP to Tunc N550 km EGRIP to AWS 3 Cu



	2016	Source	AWS	
Summ.7	AWS	2016	Source	
JP	11	143	144	183
# 1	165	141	4.51	4.34
	21cm		17cm	74
				19

1 to 183 Jd	:	41 cm snow
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2017

20	158	75
74 an	360	375
	19 an	

# Locations 2016

Sc	69° 33' 24.877"N	49° 21' 34.512"W	1163m	Trimble Geo XT
Sc	69° 33' 25.1"N	49° 21' 34.2"W	1144m	Garmin (new)
CP1	69° 52' 27.7"N	47° 01' 27.8"W	1145m	
DU10	69° 30' 04"N	49° 33' 34"W	1025	
JAR1	69° 29' 37"N	49° 42' 41"W	893m	
NEEN	77° 26' 28.2"N	51° 04' 57"W	2453	
EGRP	75° 35' 37.9"N	35° 59' 19.1"W	2693m	OLD
NASA-U	73° 50' 27"N	49° 51' 23.5"W	2333	added to google sheet
NASA-E	75° 00' 11.8"N	25° 59' 12"W		
NASA-SE	66° 28' 41.6"N	42° 29' 43.5"W	2382	
Saddle	65° 58' 59.6"N	44° 30' 08.2"W	2451	
C-Dance	63° 08' 33.5"N	44° 49' 03.0"W		
HP50	69° 44' 36"N	48° 09' 37"W	1615m	
Pet	80° 05' 49.5"N	58° 08' 18.1"W	944	
Hm	78° 31' 40.7"N	56° 50' 29.5"W	1989m	
HP18	63° 39' 53.6"N	48° 59' 50.6"W		